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WEST VIRGINIA'S WATER POLLUTION CONTROL PROGRAM. AN EVALUATION AND RECOMMENDED PROGRAM

Federal Water Quality Administration
Washington, D. C.

December 1970

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WEST VIRGINIA'S WATER POLLUTION CONTROL PROGRAM

An Evaluation and Recommended Program

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A Joint Study by
STATE OF WEST VIRGINIA
and
ENVIRONMENTAL PROTECTION AGENCY
FEDERAL WATER QUALITY ADMINISTRATION

December 1970

PENNSYLVANIA
OHIO
MARYLAND
WEST
VIRGINIA
VIRGINIA
KENTUCKY

INTRODUCTION

At a time when West Virginia is actively encouraging new industrial development in order to establish a healthier economic climate, it is most appropriate that the State also be concerned with protecting the quality of its environment. For here is a State that is rich in scenic beauty, with clean streams where native trout can still be caught. West Virginia has an opportunity to show that economic development and clean streams can truly be compatible, and that the same technology that has served this nation so well can prove to be the most important single force in protecting the environment.

Recognizing that a stronger water quality management program was needed, if the water of her streams was to be protected and enhanced, West Virginia requested the assistance of the Federal Water Quality Administration in the preparation of this joint study. The study includes an evaluation of the current water pollution control program, and the identification and analysis of the budget, staff, organization and programs needed for a more effective program.

A number of interviews were conducted as a part of this study, and an even larger number of questionnaires were distributed to individuals representing a broad range of backgrounds and interests. This was done in an effort to obtain the attitudes and views of West Virginians on their water pollution control program.

This study has not been a search for villains, for all segments of society are responsible for the water quality problems facing West Virginia. The major objective of this study is to support the State in her efforts to develop a stronger water quality management program. If West Virginia is to develop tools for effective water quality management, she must depart from the traditional emphasis on exploitation and extraction of resources, and use existing technological skills in a manner which benefits the environment.

West Virginia is not faced with a choice between clean water or jobs. She can, and must have both. Full utilization of present technology would result in the solution of todays industrial and municipal waste problems in the immediate future. What is needed, is a commitment from the many diverse elements that are found in West Virginia. Such a commitment is essential if West Virginia is to protect the quality of the waters with which she has so generously been endowed. It is hoped that this joint study can provide a degree of direction to the State in her sincere efforts to develop the type of program that is needed both for today and for tomorrow, if this rich heritage is to be preserved.

TABLE OF CONTENTS

Page

INTRODUCTION 1

SUMMARY OF RECOMMENDATIONS 5

WATER QUALITY PROBLEMS 6

HISTORY 8

PRESENT WATER POLLUTION CONTROL PROGRAM – – APPRAISAL AND FINDINGS 11
- Budget and Staff 12
- Organization 14
- Program Functions 17
  - Water Quality Planning 17
  - Water Quality Standards 18
  - Water Pollution Control Facilities 18
    - Financing 18
    - Plan Review 20
    - Permits 20
    - Operator Training and Certification 21
    - Technical Support 21
  - Mine Drainage Control 22
  - Surveillance 22
    - Monitoring 23
    - Inspections 23
  - Laboratory Support 24
  - Enforcement 24
- Executive Functions 25
  - Program Planning 25
  - Interagency Coordination 25
  - Public Information 25

RECOMMENDED PROGRAM 27
- Budget and Staff 28
- Organization 31
- Program Functions 32
  - Water Quality Planning 32
  - Water Quality Standards 32
  - Water Pollution Control Facilities 32
  - Mine Drainage Control 33
  - Surveillance 33
  - Laboratory Support 34
  - Enforcement 34
- Executive Functions 34
  - Program Planning 34
  - Interagency Coordination 34
  - Public Information 34

QUESTIONNAIRE AND TABULATED RESULTS 35

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SUMMARY OF RECOMMENDATIONS

BUDGET AND STAFF

Increase state budget to $1,200,000 and staff to 95 man–years by Fiscal Year 1974.

Establish competitive salary structure.

Add more qualified professional technical personnel representing a broader range of disciplines.

ORGANIZATION

Consolidate all water pollution control related functions in one separate agency.

Study advisability of consolidating all significant environmental protection programs.

WATER QUALITY PLANNING

Develop required river basin, regional, and metropolitan plans on or before July, 1973.

Develop planning assistance program to local government.

WATER QUALITY STANDARDS

Revise, expand and update water quality standards.

WATER POLLUTION CONTROL FACILITIES

Establish state matching grant program for municipal waste treatment facilities.

Place all applicable municipal and industrial dischargers under permit.

Expand permit system to include effluent standards.

Strengthen and expand plan and specification review function.

Strengthen and expand waste treatment plant operator training and technical assistance program.

MINE DRAINAGE CONTROL

Develop a planned, coordinated mine drainage control program.

Initiate study to determine methods of financing remedial program for controlling pollution from abandoned mines.

SURVEILLANCE

Increase frequency of water quality sampling program.

Establish water quality monitoring data handling system.

Strengthen and expand municipal and industrial treatment plant inspection program.

Require monthly operating reports from all municipal and industrial dischargers.

Establish effluent monitoring program.

LABORATORY SUPPORT

Expand laboratory operations.

Strengthen analytical quality control program.

ENFORCEMENT

Expand enforcement function to effectively enforce all existing statutes.

EXECUTIVE FUNCTIONS

Develop improved program planning capability to more effectively manage available resources to accomplish objectives.

Develop official interagency agreements between State departments to identify authority, responsibility and procedures.

Establish a separate public information function for water pollution control.

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WATER QUALITY PROBLEMS

Although West Virginia has an abundance of water, there are many areas where the streams are grossly polluted. Inadequately treated municipal and industrial waste discharges account for a significant share of the overall problem. Another extensive pollution problem in the State is that associated with the coal mining activities. In some areas a water quality problem exists due to excessive siltation from poor soil conservation practices, some of which are associated with strip mining activities.

Pollution problems caused by inadequately treated municipal and industrial wastes are primarily confined to the industrialized areas in the lower Kanawha Valley, the Monongahela River and the Ohio River. The Federal Water Quality Administration has identified the petrochemical pollution in the lower Kanawha River as the number one pollution problem in the entire Ohio River Basin. The wastes from this large complex of chemical industries have polluted the Kanawha River from Charleston to its mouth and there are indications that these wastes affect water supplies on the Ohio River as far downstream as Cincinnati, Ohio, a distance of about 200 miles. The growing concentration of industries in the upper Ohio River Valley is jeopardizing water quality conditions in the Ohio River. Inadequately treated municipal and industrial waste discharges coupled with the extensive acid mine drainage problems have seriously degraded water quality conditions in the Monongahela River and tributary streams. In addition to these specific areas, there are also several isolated sections of streams scattered throughout the State which experience pollution problems caused by municipal and industrial waste discharges.

The long history of coal mining has left West Virginia a legacy of stream pollution from coal mine drainage. Water quality of streams receiving acid mine drainage is seriously altered and many streams are rendered literally unfit for any legitimate water uses. Although much of the problem originates from the many abandoned mining operations, and is most difficult to control, there are some active mining operations that are damaging water quality.

Acid formation occurs when water and air react with the sulfur–bearing minerals in mines or refuse piles to form sulfuric acid and iron compounds. The acid and iron compounds then drain into waterways. Although acid pollution is usually limited to coal field areas, suspended solids and sedimentation damage can extend much further downstream. An example of this is the presence of large amounts of sulphate material from mine drainage that occurs in the Ohio River. Serious acid problems occur in all the major river basins in West Virginia; however, the most extensive problem is located in the Monongahela River basin. There are estimated to be over 2000 miles of streams affected by coal mining activities in West Virginia.

Siltation has adversely affected many streams in the lower elevations, particularly Ohio River and Kanawha River tributary streams which drain the western part of the State. These sedimentation problems are also very difficult to control since, in many cases, poor conservation practices on large tracts of land are responsible for the problems. Extensive sedimentation is also caused by certain strip mining operations.

The contamination of potable ground water resources by oil extraction activities has recently become a serious water pollution problem in a few areas. A noteworthy example of this type of problem is the damage caused in the areas adjacent to Charleston. In order to prevent contamination of surface waters, brine wastes are returned to the

subsurface through injection wells. In some cases, private and public well water is contaminated because the brine return process is not properly carried out.

It should be noted that even in those areas where the waters are of high quality, the task of preventing pollution requires a significant workload for a state agency.

MAJOR WATER POLLUTION PROBLEMS

HISTORY

The following chronology highlights the development of West Virginia's water pollution control program.

1914 – Sanitary Engineering Division established in State Health Department.

1929 – State Water Commission formed. Staff work performed by State Health Department personnel.

1941 – State Water Commission activities suspended during war years: -- – no staff.

1946 – State Water Commission reactivated with new law providing for a small staff. Stream classification program started.

1953 – New water pollution control law lifted exemption previously given to wastes arising from the coal industry; authorized the exercise of eminent domain in justifiable cases; and called for waste load reports from waste discharges. Public Health Law revised to authorize the establishment of public service districts to finance, construct and operate sewage collection and treatment systems in unincorporated areas.

1954 – Coal washery waste abatement program inaugurated.

1955 – State law changed the agency to Water Resources Commission and added responsibility and authority for water resources planning.

1960 – State water quality monitoring network established.

1961 – State Water Resources Commission abolished. Agency became the Division of Water Resources in the newly formed Department of Natural Resources. A 7–man Water Resources Board was established with the Chief of the Division of Water Resources serving as Executive Secretary of the Board. The Executive Secretary was given authority to cite and hold hearings, but the Board was required to make findings of fact.

1964 – Sweeping legal changes made. Chief of the Division of Water Resources given many of the functions previously performed by the Water Resources Board. The Board to serve as an appeal board on orders issued by the Chief and to promulgate rules and regulations in addition to other duties.

1965 – General rules and regulations governing water pollution control promulgated by State Water Resources Board.

1966 – Mandatory certification of sewage treatment plant operators was initiated by State Board of Health.

1967 – **(a)** West Virginia adopted water quality standards for both interstate and intrastate waters.

(b) Establishment of regional offices started by State Water Resources Division.

(c) Surface Mining Law passed by the West Virginia Legislature to be administered by the Reclamation Division of the Natural Resources Department. The Act increased the minimum bond from $1,000 to $3,000; removed the ceiling on the Special Reclamation Fund; increased penalties for non–compliance; and, most significantly, allowed the State to prohibit mining in certain areas if in the best interest of the State.

(d) Special corporate net income tax adjustment for expenditures for industrial water and air pollution control facilities provided by an Act of the West Virginia Legislature.

1968 – Secretary of the Interior approved West Virginia's water quality standards with certain exceptions.

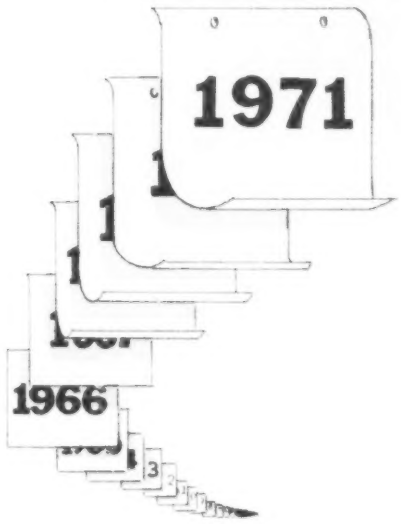
1969 – **(a)** Natural Streams Preservation Act passed by West Virginia Legislature gave authority to the Chief of the Water Resources Division to control certain streams as free flowing streams.

(b) Sweeping new water pollution control legislation was passed by the West Virginia Legislature. Among the more important amendments were: emergency power given to the Chief of the Water Resources Division, with concurrence of the Directors of Natural Resources and Health, to close without advance notice any activity causing pollution endangering the public health; court injunctions may be obtained to halt pollution; the option to stop pollution or take remedial action was removed from the polluter; the Water Resources Division Chief must consult with the Oil and Gas Division of the State Mines Department, State Geologist and the State Health Department, before issuing a permit for a disposal well; permits from the Water Resources Division must be obtained to open, operate or abandon a coal mine when water pollution potential is present; orders, penalties and investigative procedures were broadened.

1970 – **(a)** A River and Stream Improvement Program was begun in 20 of West Virginia's 55 counties with the three–fold purpose of cleaning streams of litter and trash, educating the public against littering and to search out sources of water pollution.

(b) Revised regulations on small sewage and excreta disposal systems promulgated by West Virginia State Board of Health.

(c) Water Quality Standards revised: these revisions included the designation of trout streams. Rules and regulations enacted to control wastes from laundromats, car washes, and water treatment plants.



PRESENT
WATER POLLUTION CONTROL PROGRAM
APPRAISAL AND FINDINGS

BUDGET AND STAFF

ORGANIZATION

PROGRAM FUNCTIONS

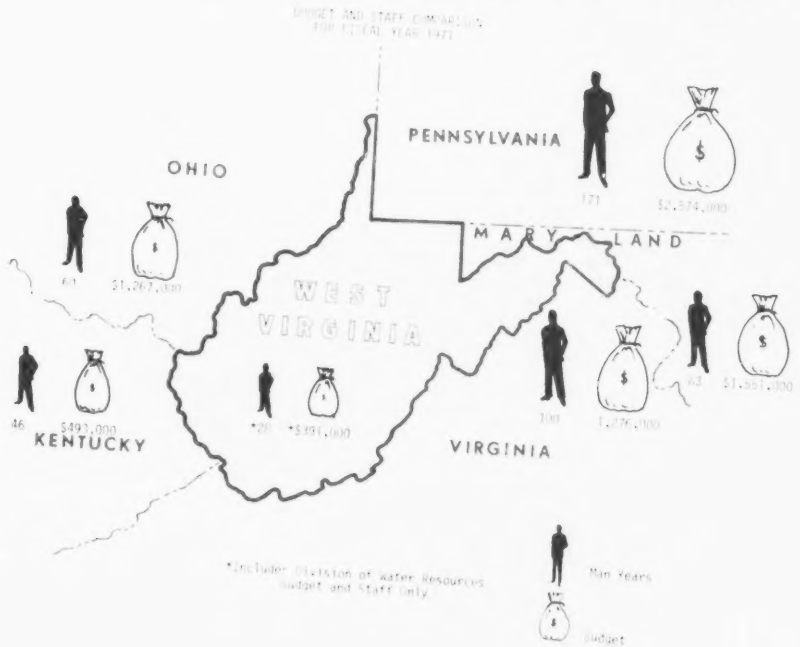
EXECUTIVE FUNCTIONS

BUDGET AND STAFF

The present water pollution control program in West Virginia is seriously hampered because of insufficient funds and shortage of personnel, particularly technical qualified professionals. The State's Water Pollution Control staff and budget have remained relatively static in recent years, while water pollution problems have become more complex and extensive.

The budget increases in the past few years have barely kept pace with rising costs. The budget has increased an average of $25,000 per year over the last four fiscal years, while the staff has remained relatively constant with approximately 30 man–years of effort assigned to water pollution control activities, including the resources of both the State Health Department and the Water Resources Division of the Department of Natural Resources.

When compared to the adjoining States, West Virginia's water pollution control program ranks last in terms of budget and staff. For Fiscal Year 1971, the West Virginia Division of Water Resources had less than 30 full time employees assigned to water pollution control activities and their total budget was $391,357, including $25,157 for participation in interstate water pollution control organizations and $110,200 Federal Funds. The Department of Health has four man–years assigned to water pollution control with a budget of $58,000. All five States adjacent to West Virginia are currently providing larger budgets and staffs for water pollution control, yet West Virginia has many complex water quality problems. When it is recognized that the water pollution control programs in the adjoining States also need strengthening, the deficiencies in the West Virginia program become even more striking.



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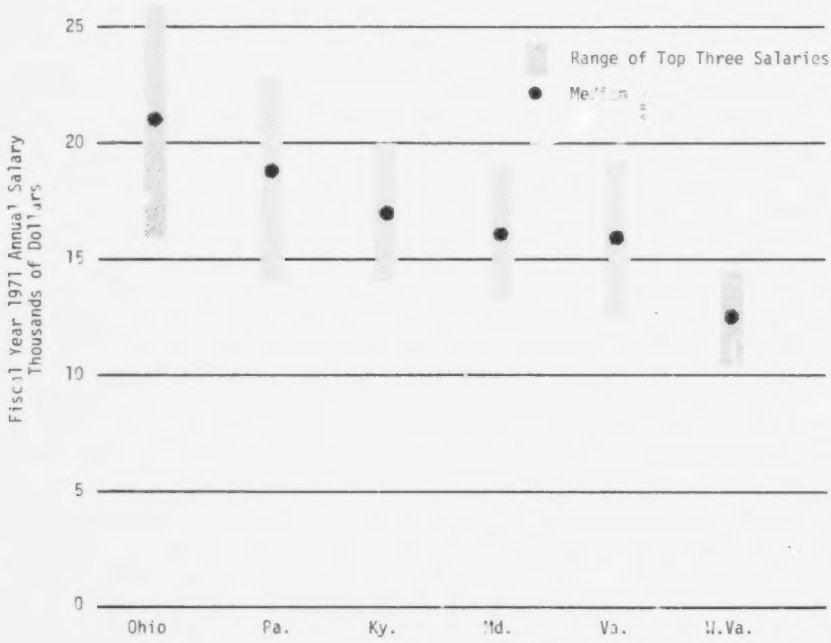
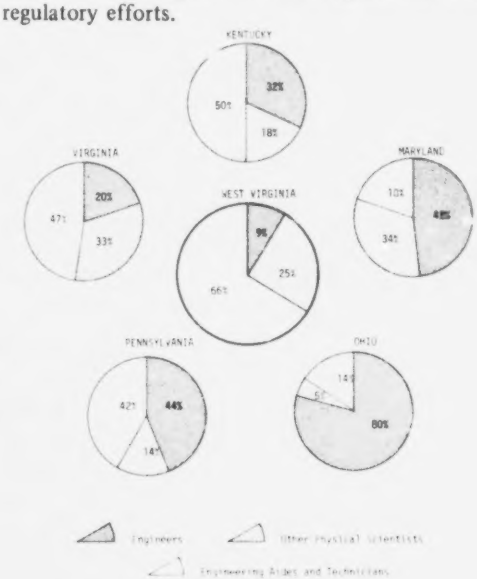
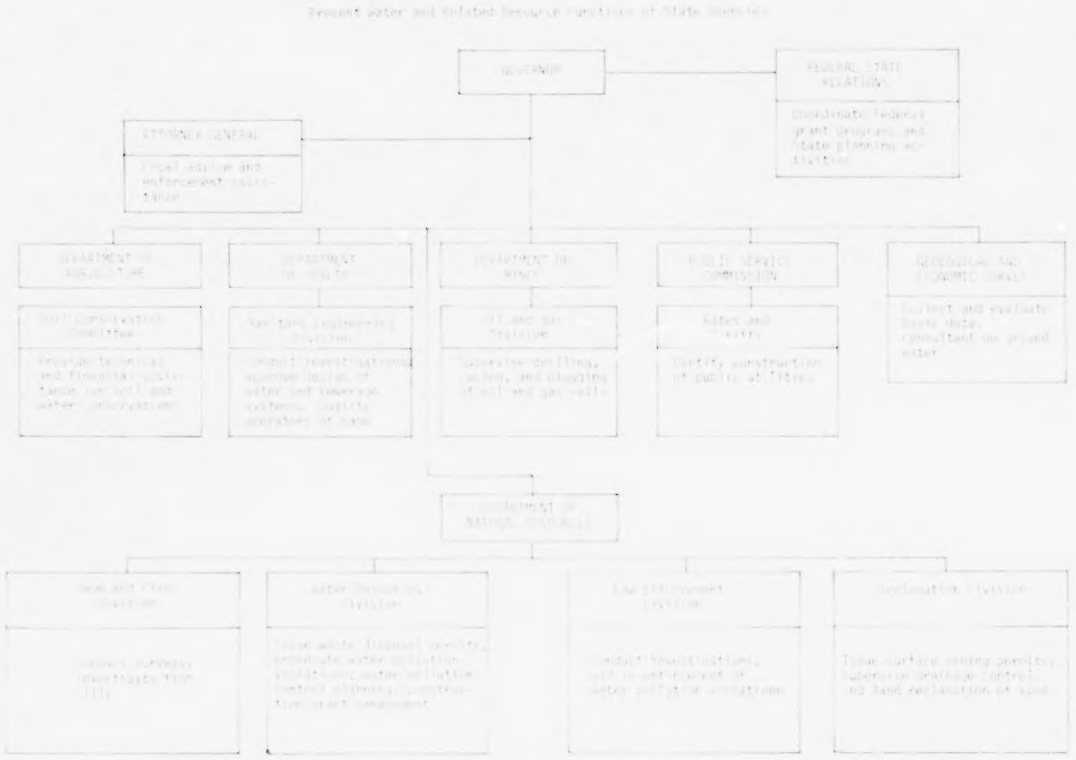


It has been very difficult for the principal water pollution control agencies to recruit and retain the technical staff required to solve the many complex water quality problems. Although several factors are responsible for this situation, probably the most significant one is the low salary schedule. When comparing salaries of the top three positions in State water pollution control agencies, West Virginia again ranks last to its five neighbors. West Virginia's colleges and universities are producing many qualified technicians, engineers, and other scientists needed to solve the many environmental problems facing the State today; however, many of these graduates must leave the State to find jobs.

The inadequate water pollution control budget and salaries are also responsible for the poor scientific–technical mix of personnel in the Division of Water Resources. During Fiscal Year 1971, 66 percent of the technical staff time assigned to water pollution control consisted of non–professional engineering aides and technicians; in all other adjoining States, the percentage of non–professional personnel ranged from 14 to 50. The Division of Water Resources has two engineers, one biologist, and four chemists on its technical staff; the Department of Health has two engineers assigned full time to water pollution control. A strong water pollution control program requires a broader range of professional skills. Because of the diversity and complexity of water pollution problems encountered in the State, there is a great need for more engineers, geologists, planners, chemists, and other professional competencies. Further, there is a need for more legal staff to strengthen the State's regulatory efforts.



ORGANIZATION



There is a pattern of functional and program fragmentation existing in the present State organizational structure for water pollution control. An organizational structure that tends to fragment rather than consolidate related programs results in a diffusion of responsibility and authority and difficulties in coordination and communication. Six different departments, the Attorney General's Office, and a recently formed Federal–State Relations Office perform, in varying degrees, activities related to water pollution control. Further, the elements of the principal water pollution control programs are submerged in the activities of the departments in which they are located. As a result, water pollution control does not receive adequate emphasis, and lacks the legislative and public visibility which are vital to a successful program.

The Division of Water Resources of the Department of Natural Resources is the principal agency responsible for the water pollution control program in West Virginia. Water pollution control is only one of the functions of the Division since it has the overall responsibility for the protection and development of the State's water resources.

The organization of the pollution control activities below the general administrative level in the Division has three areas of responsibility according to the predominate types of pollution problems found in the State. Each section – industrial, municipal, and coal preparation – has the responsibility for administering a pollution abatement program. A one–man Mine Drainage Section has recently been added. The Laboratory Section is considered a support facility for all of the water resource related activities. The Water Resources Section is responsible for the water resources management planning activities. Five field offices located throughout the State apply on a local level the policies and activities of the Division.

In addition to the Division of Water Resources, there are several other State agencies which are involved in water pollution control activities. The most vivid example of divided responsibility is the program for the control of pollution from municipal waste sources. The Department of Health must approve the design of sewage collection and treatment systems and is also responsible for the operation and maintenance of such systems. The Division of Water Resources is then responsible for the effluents from these plants. This creates problems in administration, inspections, and other facets in dealing with municipal waste systems.

The Department of Mines is another state agency involved in water pollution control activites. Its primary function related to water quality is the supervision of the drilling, casing, and plugging of oil and gas wells. With the enactment of recent water pollution control legislation, the Water Resources Division must now consult with the Oil and Gas Division of the Department of Mines, the State Geologist and the Health Department before issuing a permit for a disposal well.

In carrying out its enforcement responsibilities, the Water Resources Division relies on the Environmental Protection Division of the Attorney General's Office for legal advice and assistance. Two attorneys are normally assigned to this activity, which includes not only water pollution control, but all environmental programs. Since manpower deficiencies exist in both of these State offices, it has not been possible to prosecute all pollution violation cases. This is considered a serious deficiency since any agency responsible for regulatory functions, especially in such a vital area as water pollution control, needs a strong enforcement capability that includes adequate legal counsel.

In 1969, the planning and development functions of the Department of Commerce were transferred to the newly formed Federal–State Relations Office, which is attached to the Governor's Office. The new office has the responsibility of coordinating all Federal programs in the State and coordinates the requests for Federal funds for the construction of municipal waste treatment facilities.

Other State departments that have water pollution related functions include the Department of Agriculture, which provides technical and financial assistance to the local Soil Conservation Districts for soil and water conservation projects, the Public Service Commission which is responsible for the

WEST VIRGINIA DIVISION OF WATER RESOURCES
ORGANIZATION

financial regulations of all public utilities, and the Geological and Economic Survey which conducts investigations of the natural resources of the State.

The Water Resources Division in the Department of Natural Resources has three sister agencies in water pollution control related activities. They are the Reclamation Division, the Wildlife Resources Division (Fish Management Section) and the Law Enforcement Division.

The Reclamation Division has jurisdiction over the issuance of permits for the surface mining of coal and the reclamation of surface mined land. The Fish Management Section aids in fish kill investigations, evaluates the extent of the fish kill for remuneration purposes, and evaluates streams in regard to their suitability as habitats for fish and other aquatic life.

The State's environmental protection activities have grown up piecemeal over the years, and the State should consider organizing them in a more rational and systematic manner. Despite its complexity, the environment must be perceived as a single interrelated system. Present assignments of departmental responsibilities do not reflect this interrelatedness. The sources of air, water and land pollution are interrelated and often interchangeable. The various State elements should work toward a common end rather than try to solve the individual problems in individual ways. The total environmental system must be managed as a system. However, such a reorganization at the State level should be subjected to careful study and thought, in order to determine the most appropriate organizational configuration to protect the total environment.

PROGRAM FUNCTIONS

- WATER QUALITY PLANNING
- WATER QUALITY STANDARDS
- WATER POLLUTION CONTROL FACILITIES
- MINE DRAINAGE CONTROL
- SURVEILLANCE
- LABORATORY SUPPORT
- ENFORCEMENT

●WATER QUALITY PLANNING

To plan is to think ahead. We plan to meet expected change, to produce desired change, and to prevent undesired change. The planning process must be an integral part of any effective water quality management program. Clean water results can be achieved only by systematically controlling pollution in entire river basins. To insure that these results are lasting ones, today's actions must be predicated upon a solid planning base that has made adequate provision for the future growth of waste loads, population, industry, and water use. Otherwise, future developments may more than offset any gains that today's action programs may achieve in the years immediately ahead.

The planning process at the state level must plan on a river basin scale, place special emphasis on high priority areas of need, provide assurance that individual projects conform to an overall plan, utilize systems analysis as a planning tool, thoroughly evaluate the potential for regional sewage treatment facilities, and incorporate precise effluent requirements on all industrial and municipal sources. This type of a planning effort will require additional professional planning staff competency.

The FWQA grants program for the construction of treatment facilities has been operating under new regulations since July 2, 1970. The new regulations require more effective coordination between the planning and construction of treatment works. The planning requirements contained in the regulations require that, within a river basin, each treatment facility be part of a basinwide plan for pollution abatement, and, within a given city, that each treatment plant be included in a metropolitan or regional plan.

The new planning requirements have placed additional and immediate demands upon the State's limited planning resources. At the present time there are no State planning personnel assigned to water quality planning on a full–time basis. In order that the communities of West Virginia can continue to be eligible for Federal construction grants, they must be in compliance with the new planning requirements. These requirements make it imperative that the State's planning capability be strengthened immediately.

A number of interrelated planning activities are underway in the State. West Virginia is participating in basin planning in cooperation with other State and Federal agencies. These interagency studies result in comprehensive water and land related resource plans that lay out a framework for future river basin development. The study on the Ohio River Basin has been completed and the one on the Kanawha River Basin is nearing completion.

The activity of the Planning Section of the Water Resources Division is partially financed by the Federal Water Resources Council. Although this staff activity is not included in the water pollution control budget, the development of a State water resources plan will include some water quality planning. The staff has completed, or has in preparation, a number of reports.

The key element in the development of a stronger planning program is the proper utilization of the water quality standards. The water quality standards establish the planning objectives for the State's water quality planning program. They provide the first systematic nation–wide strategy that this country has ever had for water quality management. A strong planning program must utilize the standards as planning objectives in the development of plans whose implementation will prevent pollution before it occurs, thus eliminating the costly and time consuming catch–up game of curbing pollution after it has defiled a waterway.

●WATER QUALITY STANDARDS

Water quality standards constitute one of the most important elements in a program of water pollution control. By means of this mechanism, water uses are established, criteria are set to protect present uses and to enhance the waters for potential uses, and an implementation plan which outlines the pollution abatement measures required to meet these criteria is developed.

West Virginia, in 1967, established standards for both interstate and intrastate waters. Interstate standards, submitted in compliance with the Federal Water Quality Act of 1965, were approved with certain exceptions by the Secretary of the Interior on May 21, 1968. The standards were revised in 1970 in an attempt to resolve the exceptions. West Virginia's water quality standards implementation plan identifies waste sources, lists present treatment levels, recommends the waste treatment needed and schedules the dates by which municipalities and industries should accomplish such treatment.

The implementation plan does not indicate corrective measures beyond conventional secondary treatment. The State's persent system does provide for broad controls of many pollution sources; however, the implementation plan does not indicate steps to be taken for control of heavy metals, pesticides, thermal pollution, boat pollution or acid mine drainage. No criteria other than pH exist in the standards for the limitation of parameters associated with mine drainage. Pollutants such as iron, manganese, sulphates and hardness should be included. The standards do not contain an acceptable non-degradation policy to protect existing high quality waters.

●WATER POLLUTION CONTROL FACILITIES

Financing

Plan Review

Permits

Operator Training and Certification

Technical Support

The waste treatment plant is the primary tool to control pollution from industrial and municipal sources. Presently, it is estimated that 6 percent of the municipalities have no sewer systems, 40 percent have raw sewage discharge, 26 percent provide only primary treatment (removal of settleable solids), 28 percent have secondary treatment (settling plus biological treatment), and none has the next stage of treatment which is termed advanced waste treatment. Further, it is estimated that 45 percent of the industrial discharges have inadequate treatment.

The water quality standards require that all municipal and industrial discharges provide a

minimum of secondary treatment or its equivalent no later than 1975. Thus, about 70 percent of municipal discharges presently receive inadequate treatment. To correct this deficiency in the required time frame will require an average of 50 new or additional treatment facilities per year for the next five years at an estimated total cost of $55 million.

The following State activities are required to properly perform this program element: review plans and specifications of all proposed waste treatment facilities; provide financing assistance; provide an adequate permit system; and provide operator training and certification and technical support to plant operators.

FINANCING

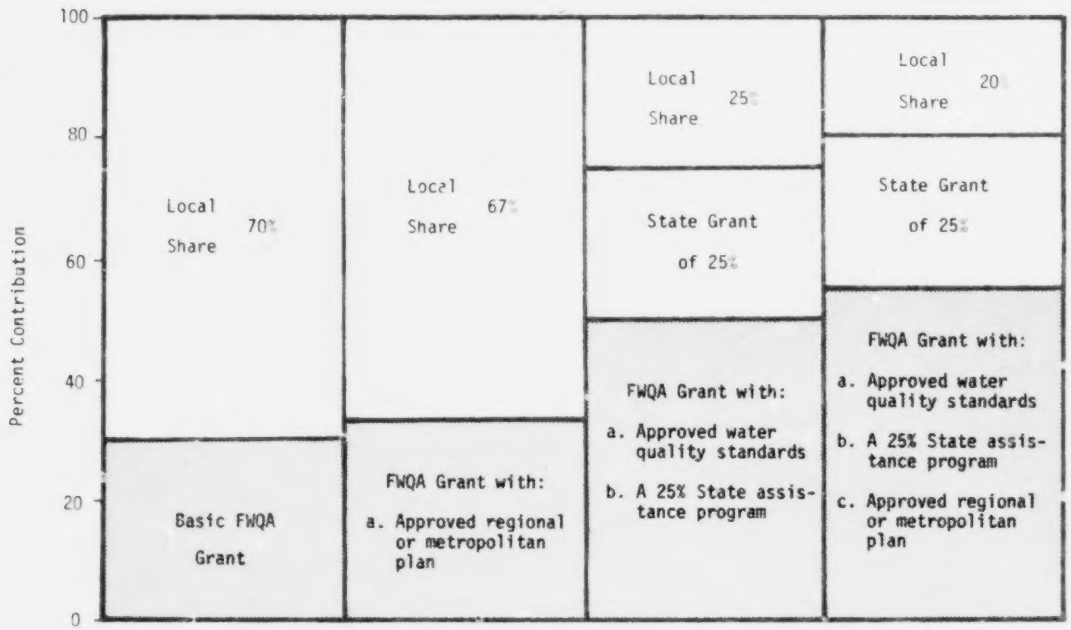
The municipal treatment plant construction program is in serious difficulty in West Virginia, primarily due to a lack of funds at the local government level.

Presently, the FWQA provides a 30 percent grant to a municipality for construction of waste treatment facilities. However, this is inadequate in many cases since the communities cannot afford to finance the

remainder of the cost, because of the exorbitant per capita cost that would result.

Unless the State can provide financial assistance to local communities, it will probably continue to lose millions of dollars of Federal funds. This is occuring at a time when about 70 percent of these communities have inadequate waste treatment.

FWQA grants could be increased to 55 percent if the State would provide a 25 percent grant, thus, the local share would only be 20 percent instead of 70 percent that now must be paid. The absence of State financial assistance to municipalities is resulting in cities and towns in West Virginia losing millions of dollars in Federal grant funds because of the inability of local governments to finance the local share of the costs. In Fiscal Year 1969, West Virginia returned over $1.2 million of the $2.8 million allotted to it, which was redistributed to other states that could utilize the funds. Unless the rate of construction is increased, there is a possibility that over $5 million of the $8.8 million grant funds allotted to West Virginia will be unused and returned to other States for reallocation in FY 1970. The Federal grant funds for FY 71 will be approximately $9.0 million and it appears that a significant amount of this will again be returned for use by other states.



PLAN REVIEW

Review of plans and specifications by the State is essential to determine if proposed treatment facilities will provide the degree of treatment efficiency that is required by the effluent permits and stream standards. These reviews include checking engineering, hydraulic, and structural details.

There is divided authority between the State Health Department and the Water Resources Division regarding review of plans and specifications for municipal waste treatment facilities. This divided authority is considered a problem that the State can ill afford with present limited resources.

Review of these construction plans as well as those for sewage disposal facilities for schools, subdivisions, motels, trailer courts and other sources of a purely local nature are performed by the State Health Department's Division of Sanitary Engineering. When permits signifying approval of these facilities are written by the State Health Department, a permit is also written by the Water Resources Division endorsing the approval of the State Health Department and granting permission to discharge the treatment plant effluent into State waters. County sanitarians are responsible for individual waste disposal systems, primarily septic tank systems.

PERMITS

Permits are required for the discharge of any waste to ground or surface water from the Water Resources Division. These permits and conditions establish the number and size of outlets, the volume of the wastes and the concentration of constituents in the wastes. Permits are also required to open, reopen, operate or abandon any mine, quarry or preparation plant if such installations might reasonably be expected to cause a discharge into the waters of the State.

If the terms or conditions of the permit are violated, the permit may be suspended or revoked by the Chief of the Water Resources Division after written notice of intent to do so. The Chief may then issue an order to cease pollution or an order to take remedial action to correct the deficiencies listed in the order.

The Chief may issue the same type of orders to persons operating without a permit. These persons may also be arrested if causing pollution, or if they are causing a discharge without having a permit. Each day constitutes a separate offense. Persons, however, working on approved remedial measures are not subject to arrest for discharges to be controlled by the remedial action.

There is overlapping authority between the Water Resources Division and the State Health Department's Sanitary Engineering Division regarding permits for municipal waste treatment plants. As mentioned previously, State law requires that engineering plans and specifications for plants treating only sewage shall be reviewed by the Sanitary Engineering Division and a permit must be issued by the Water Resources Division allowing the effluent from the approved treatment plant to be discharged into the waters of the State. The Water Resources Division is also the designated State agency to certify approved plans and specifications to the FWQA on applications for Federal grants in aid for construction of municipal sewage treatment facilities.

The Water Resources Division is responsible for approving disposal well facilities; however, it must consult with the Oil and Gas Division of the State Department of Mines, the State Geologist and the State Health Department prior to issuing a permit.

The permit system in operation in West Virginia offers the basis for great flexibility in the enforcement and regulation of water pollution. The laws, however, contain some "gray areas" which cause some confusion, and duplication. Extensive legal and engineering manpower is required to effectively administer a permit system.

In the absence of effluent standards, each permit application is "examined on its own merits," which means that the terms and conditions of the permit, especially those industries with complicated waste control problems are in some instances negotiated conditions. Unfortunately, the load limits thus set may not be sufficiently stringent to meet the water quality standards for the stream in question.

Only about 54 percent of the existing municipal discharges and about 60 percent of the existing industrial discharges are under permit from the State. The percentage for industrial discharges

includes those going to municipal sewage treatment plants with required pre-treatment but does not include drainage from active coal mines. It also includes many dischargers that are not presently providing adequate treatment. The percentage for municipal discharges includes communities that discharge raw sewage to the streams and those that have no sewer systems.

OPERATOR TRAINING AND CERTIFICATION

The training of waste treatment plant operators is essential to assure good operation and maintenance of a waste treatment plant. Training also provides a means of keeping the operators abreast of the latest technical developments in his field. The training program is also essential to qualify an operator for mandatory certification and to enable him to upgrade his skills to qualify for a higher operator classification. Each treatment plant costs thousands of dollars, therefore, it is essential that qualified personnel are available to properly operate the plant to achieve the required efficiency.

At present, the main emphasis in the training of waste treatment plant operators is a 44-week course conducted under the FWQA national contract program. Courses at Charleston and at Athens were completed in 1970. The Charleston session had 30 trainees and ten were enrolled at Athens. Prior to initiating this training program, one-week short courses were held at West Virginia University. Instructors for the training were drawn from the University, the State Health Department and the Water Resources Division. The course had been given for several years with an average attendance of about 50. All phases of sewage plant operation were presented but the emphasis was on laboratory techniques. Major weaknesses of the course were the short duration and the repetitious nature.

The present courses are much stronger and are well attended by the trainees. Other projects may be started in the future at Huntington, Parkersburg, Wheeling, and Morgantown. One major drawback is the shortage of qualified instructors.

Mandatory certification is a method by which it can be reasonably assured that waste treatment plant operation will be performed by qualified personnel. This is achieved by giving examinations to those wishing to be certified.

Mandatory certification of municipal waste treatment plant operators has been in effect in West Virginia since 1966. Qualifying examinations are given at least twice yearly under the supervision of the State Department of Health. Four classes of certificates are issued based on the complexity of treatment, equivalent population served, downstream water course conditions and potential health hazards.

The present operator training program is not adequate, especially since the increased number and complexity of plants required by the water quality standards will require a significant increase in qualified operators. An estimated average of 50 new or additional municipal waste treatment facilities will be required over the next five years. Obviously, this will require many new operators to be trained in a short time period.

TECHNICAL SUPPORT

Technical support is that assistance rendered to waste treatment plant operators who are having operating difficulties or to those who need any technical advice on water pollution control in the State.

Technical support in the form of a continuous flow of pertinent information is needed to inform the operators of the latest advances in operation and maintenance technology and in other aspects of waste treatment plant management.

Under West Virginia law, the primary responsibility for technical assistance to municipalities lies with the State Department of Health through its Sanitary Engineering Division, although plant inspections are also made by Water Resources Division personnel. However, because of limited manpower very little technical advice is rendered by either agency.

Technical assistance to industrial waste treatment plant operators is practically nil except for waste disposal practices applicable to the coal industry. This primarily is due to lack of technical personnel, trained in the complex field of industrial waste treatment.

●MINE DRAINAGE CONTROL

Mine drainage constitutes a very significant pollution problem in West Virginia, affecting over 2,000 miles of streams. However, this problem receives the least attention from the State's water pollution control effort. Again, this is primarily due to limited qualified staff.

There is practically no active, planned, coordinated program for mine drainage control. Recently, a mine drainage control section was established in the Water Resources Division; however, only one chemist is assigned to this activity. Effluents from coal washeries (wet process coal preparation plants) are also handled in a separate section, with one assigned engineer.

Methods of reclamation are presently known which can reclaim certain strip mining areas and abate the acid problems caused by drainage from active and abandoned deep mines. However, there are serious considerations of financial responsibility for abandoned mines, since those responsible for the extraction of the minerals are not the current landowners. In any event, the cost involved in achieving significant levels of control will be very high.

Pollution from active surface mining is being attacked under a 3–year–old law which requires that drainage control plans be made a part of the permit applications to the Reclamation Division of the State Department of Natural Resources. The authority for the reclamation of surface mined land was established in the law and is being implemented by the Reclamation Division.

Pollution law violations are enforceable under the State Water Pollution Control Law and can be implemented by the Law Enforcement Division of the Department of Natural Resources acting upon request of the Water Resources Division.

Control of drainage from active deep mines is enforceable under State water pollution control laws. However, lack of personnel in the Water Resources Division has prevented an inventory of pollution sources, and consequently, prevented an active control program. Some work is done, but only on a complaint basis.

The control of drainage from abandoned underground mines will be a tremendous undertaking, but since a large portion of mine drainage pollution is derived from this source, it is essential that remedial action be started as soon as possible. Obviously, the current staff of one is inadequate to cope with the problem.

●SURVEILLANCE

Water Quality Monitoring

Inspections

Effective implementation and enforcement of water quality standards and discharge permits, administration of grants, preparation of reports, assessment of treatment needs and efficiency and operator training needs require accurate fact finding and readily available data. Specific data covering the status and effectiveness of municipal and industrial waste treatment facilities are needed. Collection, evaluation and dissemination of data on chemical, physical, and biological water quality and other

information relating to water pollution discharges is an essential element of a state water pollution control program.

All of the above constitutes a water quality surveillance program which essentially consists of water quality monitoring, inspection of all waste treatment facilities, including effluent monitoring, and investigation of spills of oil and other materials and citizens' complaints.

WATER QUALITY MONITORING

Regardless of the number of treatment facilities completed or the number of basin management plans completed, in the final analysis, program effectiveness can only be measured in terms of actual water quality. And this can only be achieved through adequate monitoring of water quality. This involves the collection, analyses and evaluation of water samples, either by means of electronic monitors or manually. Water quality cannot be effectively managed unless we know what it was, what it is, and what it can be. Changes cannot be detected, natural or manmade, desirable or undesirable, without repeated observations and established baselines. An effective, well-designed monitoring program is necessary in setting water quality objectives, creating policing mechanisms, and evaluating performance.

West Virginia has had a water quality monitoring program since 1960. In addition to the state network of sampling stations, it also cooperates in the sampling networks of the FWQA, and the Ohio River Valley Water Sanitation Commission (ORSANCO).

The network consists of 64 stations, 45 of which are located on interstate streams. For the present, this number is considered to be adequate. In addition, a water quality surveillance program has been operated by Kanawha Valley industry for the past eleven years. This program consists of daily grab samples at five locations. The State is participating in the national water quality data storage and retrieval system (STORET) by supplying FWQA with all water quality data.

The entire program, however, has been in difficulty since its inception. Lack of funds and personnel are largely responsible for most of the problems. The data were published yearly for the first three years, but nothing has been published since 1963, although sampling and analyses have continued.

In recent years, in an effort to keep abreast with the expanding list of parameters to be monitored, the types of analyses were increased, but the frequency of sampling was reduced considerably. Routine sampling occurs now normally every six weeks. Certain parameters such as arsenic, barium, cyanide, selenium and silver are sampled twice a year. Other parameters, such as mercury, have not been sampled on a routine basis. Indications are that further curtailment may be necessary.

TREATMENT PLANT INSPECTIONS AND WATER QUALITY INVESTIGATIONS

Inspection and evaluation of municipal waste treatment plants and industrial waste control facilities is a program function of great importance. Inspections are needed to ascertain the effectiveness of operation and maintenance of the facilities, to assure compliance with the construction plans and specifications, to assess operator training needs and to assure continued compliance with the implementation plan for meeting the water quality standards and permit conditions.

Obviously, it is impractical to spend millions of dollars on treatment facilities but not conduct adequate inspections to assure that they are being properly operated.

In West Virginia, the surveillance of industrial waste treatment plants is carried on by means of periodic waste load reports from the plant operators and by inspections by Water Resources Division personnel.

The control over municipal waste treatment plants, however, is somewhat complicated by the division of authority between the State Health Department's Sanitary Engineering Division and the Water Resources Division of the Department of Natural Resources. State law makes the Health Department responsible for in-plant operation and maintenance, but gives the Water Resources Division the authority to control the quality of the plant effluent to meet the water quality standards.

Municipal treatment plant operating reports go to the State Health Department while the Water Resources personnel make the majority of the routine plant inspections.

Results of the plant inspections by the Water Resources Division are recorded on an inspection questionnaire form, which, unfortunately, is more of an inventory nature than a performance check. It is the aim of the Division to make monthly inspections, but much of the information requested on the inspection form, once it is obtained, will remain unchanged and does not require monthly questioning.

Periodic waste load reports are required from most of the manufacturing industries with waste treatment facilities under permit from the Water Resources Division. These vary from monthly to quarterly as required by the Division Chief in consideration of the stream flow volume and concentration of the wastes involved. Manufacturing industries are inspected from time to time by Water Resources personnel but these are scattered and irregular, due to the lack of qualified personnel with knowledge of the various manufacturing processes. Lack of funds and personnel also prevent an active surveillance of mine drainage sources. Periodic waste load reports are not required from coal preparation plants; however, the Water Resources Division does conduct an intensive visual inspection program.

Performance tests at waste treatment plants are seldom, if ever, performed. The tests are time consuming and difficult to do but, nevertheless, are important in order to determine if the plant is maintaining its design efficiency. Here, again, lack of funds and personnel can be blamed.

The rules and regulations of the State Water Resources Board require that all spills and accidental discharges to State waters be reported to the Division of Water Resources by the person responsible. If the situation merits it, a thorough investigation is made of the effects on the stream and the cause of the spill. Local pollution cases and citizens' complaints, not involving municipal treatment plants, are also investigated at times by the sanitarians in the County Health Department.

Adequate performance of all the above activities require many qualified technical personnel. The State's present resources are totally inadequate to meet this demand.

LABORATORY SUPPORT

No pollution control program can be better than the available laboratory resources. Four of the 30 persons assigned to water pollution control are laboratory personnel.

The Laboratory operations support all the other functions of the water pollution control program. Practically all enforcement activities must be supported by analytical data.

Although generally well equipped, West Virginia's water pollution control laboratory is critically short of qualified technical personnel.

ENFORCEMENT

A strong, effective, and equitable regulatory effort is the most essential element in the State's water pollution control program. Strict standards and strict enforcement are necessary – not only to assure compliance, but also to assure that the costly effort of pollution control is achieved on a uniform and fair basis for all municipalities and industries.

Generally, West Virginia has an adequate legislative base to control water pollution. The basic tools for enforcement and regulation are public health laws, the water pollution control laws, and the water quality standards. The water pollution control law gives broad administrative powers to the Chief of the Water Resources Division to grant or deny permits, issue orders, and seek injunctions. The Water Resources Board is empowered to set rules and regulations, act as an appeal board and advise the Chief.

Violations of the water pollution control laws and regulations are punishable by fines up to $10,000, imprisonment or both. This involves detailed legal procedures and requires accurate technical data to support the legal action.

West Virginia spends a disproportionate amount of time in reaction–type enforcement actions. With more qualified staff and funds, greater attention could be devoted to a planned program of pollution abatement and enforcement, preferably on a basin–wide approach.

One other factor in the enforcement program is the divided or overlapping authority in enforcement cases between the State Health Department, the County Health Departments, and the Law Enforcement and Water Resources Divisions of the Natural Resources Department.

The Division of Environmental Protection in the Attorney General's office is responsible for enforcing all laws pertaining to water pollution control as well as other environmental protection laws. Presently, there are two attorneys assigned to this division.

Again, enforcement is the key to successful water pollution control. West Virginia has adequate legislation, however, it does not have the legal and technical staff to enforce these existing laws.

EXECUTIVE FUNCTIONS

PROGRAM PLANNING
INTERAGENCY COORDINATION
PUBLIC INFORMATION

PROGRAM PLANNING

Program Planning is essential for good program management. It should consist of identifying the mission of the agency, determining the objectives to be achieved during a given time frame, allocating resources to accomplish these objectives and measuring accomplishments. The lack of staff in the State has precluded this type of program planning and much of the program is based on limited reaction instead of a program of planned action.

INTERAGENCY COORDINATION

Since water pollution control affects a number of State activities, e.g., State Planning, Highway Construction, Health, and Development, etc., which have legal or implied interest in water pollution, it is essential that good interagency coordination be maintained at the top management level. Interagency coordination between State and Federal agencies is also very necessary as there are several Federal agencies involved in different aspects of water pollution control.

Presently, there exists an informal Interagency Coordinating Committee consisting of various environmental protection agencies in the State. This committee meets every other month to discuss mutual objectives and problems. However, there is a lack of official interagency agreements between these agencies.

PUBLIC INFORMATION

In the final analysis, success or failure of the State's water pollution control effort will depend on the public. Thus, it is imperative that the public is well informed and can express its voice intelligently and effectively in decisions affecting the quality of its environment. A state water pollution control agency should have the capability of keeping the public informed of the agency's programs, what impact these programs will have on it, and what the public must do to gain the maximum benefits from these programs.

The present public information program is a service effort of the Department of Natural Resources, which in addition to the Water Resources Division, includes other divisions such as Wildlife Resources, Recreation, and Forestry. The monthly departmental publication has been primarily a sportsman's publication which deals with game and fish activities, State parks, and State forests, with very little information on water pollution control.

RECOMMENDED PROGRAM

BUDGET AND STAFF

ORGANIZATION

PROGRAM FUNCTIONS

EXECUTIVE FUNCTIONS

In order to develop the recommended program that follows, the State's present program was compared to the elements of an adequate State water pollution control program. Further, to determine budget and staff needs, several factors were considered. Among these were: population, population density, percentage urbanization, number of industrial and municipal dischargers and treatment facilities, miles of stream and specific pollution problems. Some of the most extensive pollution problems result from complex industrial wastes and mine drainage, which were also taken into consideration in developing the recommended budget and staff.

BUDGET AND STAFF

1. It is apparent from this study that the current West Virginia water pollution control staff and budget are totally inadequate and must be significantly increased to meet both the present and future demands for water quality protection and enhancement.

   The present State budget and staff should be expanded to $1.236 million and 95 man–years. It is recognized that such an expansion cannot be accomplished immediately; therefore, it is recommended that the increase be phased over a three–year period. Table 1 summarizes a suggested breakdown of this phased program, and the required resources to perform the various program functions.

2. A concurrent step along with the increase in budget and positions should be the development of competitive salaries for highly skilled technical categories. This is essential if the State is to attract professional employees; therefore, the recommended budget is based on the premise that these competitive salaries will be paid. It will do little good to increase the budget and positions if the State cannot recruit qualified personnel to fill these positions.

3. Table 2 lists the suggested requirements for an adequate water pollution control staff for West Virginia. These are listed by function and are phased over the suggested three–year period.

   In addition to the overall needs of significant staff expansion and organizational realignment, a large number of technical, professional personnel must be immediately employed. Each of the field offices should have, as a minimum, permanent positions for a regional engineer, a staff engineer, and the required number of inspectors and clerical help. A broader range of professional skills is needed on the headquarters staff.

   A sound water pollution control laboratory support element requires the service of a bacteriologist, an aquatic biologist, chemists and technicians. Several geologists are needed to effectively plan and carry out a mine drainage abatement program.

   Sanitary and industrial engineers and other technical disciplines are needed to carry out the functions of the Surveillance and Facilities Units. Full–time attorneys should be assigned to an enforcement unit, along with engineers and technicians, to assist in the evaluation of data and the preparation of cases. A planning unit staff should have engineers and technicians familiar with all types of pollution problems found in West Virginia and it should be supervised by a qualified planning engineer.

TABLE 1. WATER POLLUTION CONTROL PROGRAM BUDGET

Program Element	Present FY 1971 Budget*	MY	Proposed FY 1972 Budget*	MY	Proposed FY 1973 Budget*	MY	Proposed FY 1974 Budget*	MY
Surveillance	$ 267 1/	24 1/	333	23	511	33	709	43
Water Quality Planning	0	0	58	4	62	4	66	4
Water Pollution Control Facilities	65	3	116	8	124	8	132	8
Mine Drainage Control	0	0	43	3	93	6	148	9
Enforcement	–	–	72	5	93	6	99	6
Laboratory Support	–	–	203	14	295	19	330	20
Executive	59 2/	1	43	3	62	4	82	5
TOTALS	391	28	868	60	1,240	80	1,566	95
Federal Funds	110		220 3/		330 3/		330 3/	
State Funds	281		648		910		1,236	

* Thousands of dollars.
1/ Includes Enforcement activities, special studies and laboratory support.
2/ Includes contribution to interstate agencies.
3/ Based on proposed legislation.

NOTE: Present FY 1971 budget does not include the Department of Health's water pollution control activities estimated at four man-years and budget of $58,000. Proposed budgets reflect total water pollution control effect.

TABLE 2. WATER POLLUTION CONTROL STAFFING REQUIREMENTS

Position Title	Primary Function	FY 1971 Present Staff	FY 1972 Proposed	FY 1973 Proposed	FY 1974 Proposed
Executive					
Chief	Administration	1	1	1	1
Assistant Chief	Administration	1	1	1	1
Admin. Assistant	Administration	0	0	1	1
Public Information Ofcr	Public Information	0	0	1	1
Clerical	Administration	1	1	1	2
Headquarters					
Supervisory Engr.	Facilities, Planning & Surveillance	0	4	5	6
Staff Engineer	Facilities, Planning & Surveillance	2	8	11	13
Engineer Technician	Facilities, Planning & Surveillance	0	3	4	5
Attorney	Enforcement	0	1	2	3
Sanitarian	Facilities & Planning	0	1	2	2
Geologist	Mine Drainage Control (MDC)	0	3	3	3
Draftsman	Planning	0	1	1	1
Laboratory Supvr.	Laboratory	1	1	1	1
Chemist	Laboratory	4	4	5	5
Bacteriologist	Laboratory	0	1	1	1
Aquatic Biologist	Laboratory	1	1	1	1
Laboratory Technicians	Laboratory	1	6	9	10
Clerical	Administration	4	4	5	6
Field					
Water Resources Supvr.		3	0	0	0
Supvr. Engineer	Regional Engineers	0	2	5	5
Staff Engineer	Surveillance & MDC	0	5	6	9
Inspector	Surveillance & MDC	9	10	11	13
Clerical	Administration	0	2	3	5
	TOTALS	28	60	80	95

Note: Present FY 1971 staff total does not include the Department of Health's water pollution control activities estimated at four man–years. Proposed staff requirements reflect total water pollution control effort.

ORGANIZATION

1. In order to improve the overall organizational structure, effectiveness and efficiency of the water quality program, all water quality related functions should be consolidated in one agency, separate from existing departments.

   As a minimum amount of reorganization, present functions relating to water pollution control that are now in the Sanitary Engineering Division of the Health Department should be consolidated with those of the Water Resources Division as soon as possible. This includes but is not limited to the following activities:

   a. Review of plans and the issuance of construction permits for sewer and waste treatment systems.

   b. Operation and maintenance inspections, and performance tests of municipal waste treatment facilities.

   c. Training, examination and certification of waste treatment plant operators.

   d. Receiving, reviewing and evaluating monthly municipal waste treatment plant operating reports.

   e. Other activities relating to the planning, development, construction, operation, maintenance, regulation and enforcement of water pollution control for waste collection or waste treatment facilities.

   Although the two agencies function in close cooperation with each other, it is believed that a stronger organization could be achieved by this consolidation. However, it is recognized that there must be health inputs to the water pollution control program. This could be handled by an interagency agreement between the two agencies. Furthermore, the water pollution control activities concerning individual waste systems performed by the local health departments should be continued.

2. Because of the interrelationship between environmental programs and the need to manage the entire system, it is suggested that the State examine the advisability of major reorganization which would consolidate all of the more significant environmental protection programs. It should be noted that this is the current trend of the Federal Government, as well as several states.

Following is a suggested organization chart for the water pollution control program for West Virginia.

Since detailed water quality plans are now required before approval of Federal cost-sharing for construction of wastes collection and treatment facilities, the Planning Unit should be responsible for the coordination of local planning activities and the development of river basin water pollution abatement plans. The Facilities Section should oversee the issuance of waste discharge permits, manage the construction grants program, review all plans for waste treatment facilities, and provide technical assistance relative to waste treatment problems of a difficult nature. The Mine Drainage Unit should be primarily responsible for the development and coordination of a mine drainage abatement program for both active and abandoned mines. The Surveillance Unit should administer the treatment plant field inspections, water quality monitoring, effluent monitoring and data evaluation, and be responsible for investigation of spills and citizen complaints. Much of this function would be handled at the field offices. The Laboratory should continue to function as a support facility to all program elements. The Enforcement Unit should initiate and prepare enforcement action when necessary and assist the other functions in legal matters.

The field offices should continue to operate under the direction of the Chief. Their primary functions would include the periodic inspections of municipal and industrial waste treatment facilities, the investigation of citizen complaints and accidental spills, and the field activities associated with the mine drainage and water quality monitoring programs.

PROGRAM FUNCTIONS

WATER QUALITY PLANNING
WATER QUALITY STANDARDS
WATER POLLUTION CONTROL FACILITIES
MINE DRAINAGE CONTROL
SURVEILLANCE
LABORATORY SUPPORT
ENFORCEMENT

WATER QUALITY PLANNING

1. There is a serious need for greater emphasis on a stronger overall water quality planning program. Adequate planning staff should be provided immediately so that the required river basin, regional and metropolitan plans can be developed and certified to the FWQA to insure that treatment plants will contribute to the effective cleanup of entire river basin systems, in order to qualify applicants in the State for construction grants under the new Federal regulations.

2. There should be developed an effective State planning assistance program to local government that will encourage the development of regional treatment systems.

WATER QUALITY STANDARDS

1. The implementation plan should be revised, expanded and updated to indicate corrective measures needed beyond conventional secondary treatment.

2. The implementation plan should also address itself to special problems such as heavy metals, pesticides, boat pollution and most importantly, mine drainage pollution.

3. The water quality standards should be expanded to include all parameters associated with mine drainage.

4. The non-degradation policy to protect high quality waters should be revised to insure that all wastes discharged to these waters will receive the best practical degree of treatment.

WATER POLLUTION CONTROL FACILITIES

1. The State should establish a State matching grant program for municipal waste treatment facilities, to assist the State in meeting its commitment of secondary treatment for all municipal dischargers by 1975. The matching grant program would also prevent loss to the State of millions of dollars of Federal grant funds to other States because local West

Virginia governments are unable to finance their share of the costs.

Also, the State needs to expand consultation and liaison with municipalities concerning treatment requirements and grant funds availability.

2. The present permit system should be expanded and refined to include effluent standards. This would eliminate any inequities that might result from the present system. All applicable municipal and industrial discharges should be placed under permit.

3. The plan and specification review functions should be expanded to adequately handle the increased construction of municipal and industrial treatment plants to meet the water quality standards implementation plan requirements.

4. The waste treatment plant operator training program should be expanded. This will be imperative as the State meets its construction schedule for additional treatment facilities as outlined in the water quality standards. This schedule is estimated to require construction of an average of 50 new or additional municipal treatment facilities each year for the next five years. This estimate is in addition to the additional industrial waste treatment facilities required.

   The operator training program should be developed from needs made apparent by plant inspections, monthly operating reports, effluent sampling, plant performance tests, and stream quality monitoring. The present operator training program being funded by FWQA should be expanded.

5. The technical assistance function should be expanded to aid treatment plant operators in solving difficult operating problems that could seriously affect the plant efficiency.

MINE DRAINAGE CONTROL

1. A planned, coordinated program for mine drainage control is a most urgent need in West Virginia. Such a program will entail locating and inventorying all active and abandoned sources of drainage, measuring the quality and quantity of the flows and planning and scheduling the remedial measures necessary to correct the problems. Since mine drainage is a very extensive pollution problem in the State, affecting over two thousand miles of streams, a mine drainage control program will require considerable staff.

2. West Virginia should initiate immediately an investigation of sources of revenue to finance a remedial program for controlling pollution from abandoned mines. To substantially eliminate degradation of the State's water resources by mine drainage will require a significant expenditure of funds.

3. Mine drainage from active mining operations can be controlled by utilizing existing legislation and technological control techniques, provided that the staff and budget are expanded to enable adequate enforcement. However, pollution from abandoned mines is a much more complex problem and will require a substantial remedial program, and much longer time period to solve. Therefore, West Virginia's immediate efforts should be directed toward control of drainage from active mines in addition to those industrial and municipal sources for which technology and resources can be made readily available.

SURVEILLANCE

1. There is an immediate need for a system to provide efficient collection, evaluation and dissemination of water quality monitoring data. If these data are to be meaningful, samples should be collected at least monthly. A summary of this data should be published annually. The State should continue to participate in FWQA's data storage and retreival system (STORET) as a base for its own evaluation and dissemination system.

2. Every municipal and industrial waste treatment plant in the State should be inspected quarterly, and a detailed 24 hour technical inspection consisting of a

performance or efficiency test should be conducted annually. This inspection schedule should be sufficient to correct any operational problems that are inhibiting plant efficiency.

3. Monthly operating reports should be required from every municipal and industrial discharger, and should be thoroughly evaluated on a routine basis. A program of effluent monitoring should be developed in conjunction with the monthly inspection function to validate these operating reports, and to examine compliance with permit conditions.

LABORATORY SUPPORT

1. The laboratory operation should be greatly expanded to accommodate the increased workload of an adequate surveillance program. This will require several additional technically qualified personnel.

2. A routine analytical quality control program should be performed to validate the data for enforcement actions.

ENFORCEMENT

1. The staff in the Attorney General's Environmental Protection Division should be increased to include three full-time attorneys for water pollution control.

2. In addition, there is a need for more professional technical staff to perform the enforcement functions.

3. The recommended expansion and refinement of the treatment plant inspections, effluent monitoring and water quality monitoring, and the addition of effluent standards will greatly assist in providing a good base for enforcement action.

   The proposed expansion in staff will enable the emphasis in enforcement to be shifted from a reaction program to a well-planned program of positive action.

EXECUTIVE FUNCTIONS

PROGRAM PLANNING

INTERAGENCY COORDINATION

PUBLIC INFORMATION

PROGRAM PLANNING

As the staff and budget increase, a program planning function should be developed to determine objectives, allocate resources to effectively accomplish these objectives and measure accomplishments.

INTERAGENCY COORDINATION

In order to clarify certain portions of the law pertaining to water pollution control, official interagency agreements between such agencies as Wildlife Resources Division, Law Enforcement Division, Oil and Gas Division, State and County Health Departments and the Water Resources Division should be developed. These agreements should clearly identify authority and responsibility and indicate in detail what specific action should be taken in various situations by the cooperating agencies.

PUBLIC INFORMATION

A public information function should be established in the water pollution control agency. This should be staffed with a full-time Public Information Officer. This function should develop various publications to communicate the activities and accomplishments of the Agency and also develop sound public relations liaison with the media, legislature, and the public.

QUESTIONNAIRE AND TABULATED RESULTS

Numerous interviews were conducted as a part of this study, and a large number of questionnaires were distributed to individuals representing a broad range of backgrounds and interests in the State. This was done in an effort to obtain the attitudes and views of West Virginians on the water pollution control program.

The questions included in the survey with the tabulated results are listed below. As noted in all cases, there is a broad base support for improving and expanding the water pollution control program in West Virginia.

QUESTIONNAIRE

1. a. Do you believe there are water pollution problems in West Virginia?

   yes 100% no 0%

   b. If so, rank the following problems in numerical order, using 1 as the most serious, 2 as the next most serious, etc.

   1. Mine drainage
   2. Municipal wastes
   3. Other industrial wastes
   4. Oil and gas wastes
   5. Thermal wastes
   6. Agricultural wastes
   7. Other

2. Can you name the state agency (s) responsible for controlling water pollution?

   correct 70% incorrect 30%

3. a. Do you consider West Virginia's Water Pollution Control Program adequate?

   yes 5% no 95%

   b. If no, please check which of the following you consider needs strengthening in the State's program?

   1. Enforcement
   2. Budget
   3. Staff
   4. Mine drainage control
   5. Financial aid to municipalities for constructing treatment facilities
   6. Municipal waste program
   7. Legislation
   8. Inspections
   9. Industrial waste program
   10. Public information
   11. Technical assistance to municipalities and industry
   12. Other

4. Which of the following do you consider the most serious restraints to strengthening the Water Pollution Control Program?

   1. Budget
   2. Public support
   3. Competitive staff salaries
   4. Organization
   5. Legislation
   6. Legislative support

5. a. Do you consider the present State laws adequate for controlling and preventing water pollution?

   yes 46% no 54%

   b. If no, can you name areas needing improvement?

   1. Enforcement
   2. More control of acid mine drainage

6. a. Existing Federal legislation provides a minimum 30% grant to municipalities for construction of waste water treatment plants. This grant can be increased to 55% if the State

contributes 25%, thereby reducing the municipality's share to 20%. Would you support such a State grant program?

yes 87% no 13%

b. Even if this would require a state constitutional amendment?

yes 91% no 9%

7. a. The Federal Government and several States are consolidating environmental programs into one separate agency. Would you support legislation to create such an agency in West Virginia?

yes 87% no 13%

b. What do you think should be included in this agency? e.g. water pollution control, air pollution control, solid wastes, etc.

1. All of these plus others
2. Need task force study

8. a. Would you support a significant increase in budget and staff in order to provide West Virginia with an adequate water pollution control program?

yes 94% no 6%

b. Even if this increase meant utilizing some funds from some other State activities or increasing taxes and/or developing some new type of taxes?

yes 89% no 11%

c. Would you be willing to testify at legislative hearings to support an increased water pollution control program?

yes 90% no 10%

9. How do you believe is the best way to finance an adequate water pollution program?

1. General revenue fund
2. Tax on industry
3. User tax
4. Tax on natural resources
5. Bonds
6. More Federal money
7. Increased income tax

10. Rank the following water uses as to which you consider the most important, using 1 as the most important, 2 as the next most important, etc.

1. Drinking water
2. Industrial
3. Aquatic life
4. Agriculture
5. Recreation
6. Other

11. Do you believe that economic development and clean water can be compatible?

yes 99% no 1%